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CONTENTS

	PAGE
Britton, Everard B., M.Sc., F.R.E.S. The Carabidae (Coleoptera) of New Zealand. Part II. Tribes Lebiini and Pentagonicini	185–196, 11 figs.
China, W. E., M.A. A new species of *Leotichius* (Hemiptera Heteroptera Leotichiidae) living in caves in Malaya	200–202, 2 figs.
Hemming, Francis, C.M.G., C.B.E., F.R.E.S. On eight subspecies in the Lepidoptera Rhopalocera at present without valid names	207–208
Morison, G. D. *Oxythrips agathidis* sp. n. (Thysanoptera, Thripidae) from Queensland	203–207, 3 figs.
Williams, Francis X. An apparently undescribed *Tachysphex* (Hymenoptera, Larridae) from Trinidad, B.W.I.	197–199, 10 figs.

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THE CARABIDAE (COLEOPTERA) OF NEW ZEALAND.[1] PART II. TRIBES LEBIINI AND PENTAGONICINI

By Everard B. Britton, M.Sc., F.R.E.S.

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This paper is the second of a projected series on the Carabidae of New Zealand, the purpose of which is to make available the information contained in the Broun Collection of New Zealand Coleoptera. Having had the opportunity of examining the types of almost every known species, I hope to be able to establish the synonymy, to determine the systematic position of the little known and obscure genera, and by means of keys, figures and redescription, to make accurate identification possible for those who have no access to the original material.

Lebiini.

According to the key to the tribes given in the earlier paper on the Pterostichini (1940, *Trans. R. Soc. N.Z.* **69** : 475), three genera are included in the Lebiini. Two of these, *Agonochila* and *Demetrida*, are undoubtedly correctly placed, but the third, *Actenonyx*, is probably more closely allied to the Odacanthini. In the Junk Catalogue (: 1506) it is placed at the end of the Pentagonicini (Scopodini), but it differs from *Pentagonica* and *Scopodes* in having the mentum based on a projecting submentum, in the presence of a strong tooth on the mentum, and in the labrum, which is of normal size. *Actenonyx* differs from the Lebiini and approaches the Odacanthini in having a subcylindrical thorax, with the lateral margins not expanded but represented by mere ridges which are dorsally placed so that the convex episterna are visible from above; the margins of the pronotum without setiferous punctures and the head with a variable number (2–6) of setiferous punctures on each side above the eye. *Actenonyx* diverges from the Odacanthini in that the head is not sharply constricted behind to a narrow neck. The most closely related genera appear to be the Australian *Eudalia* and *Gestroania*.

Key to the genera of Lebiini.

1. Pronotum with the posterior angles absent and the lateral margins not flattened but represented merely by a ridge; the convex proepisterna visible from above; the whole body including the legs, antennae, and mouth-parts, black; head with a variable number (2–6) of setiferous punctures on each side of the head above the eye; tarsal claws smooth *Actenonyx*.

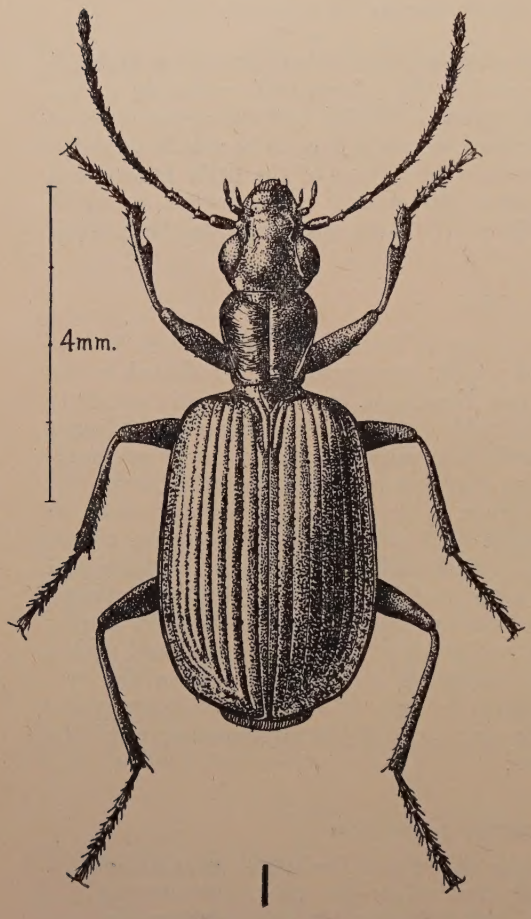
–. Pronotum with the posterior angles always evident and the lateral margins flattened so that the proepisterna are never visible from above; colour sometimes brownish-black, but never entirely black; head never with more than two supraorbital setiferous punctures; tarsal claws pectinate . . . . . 2.

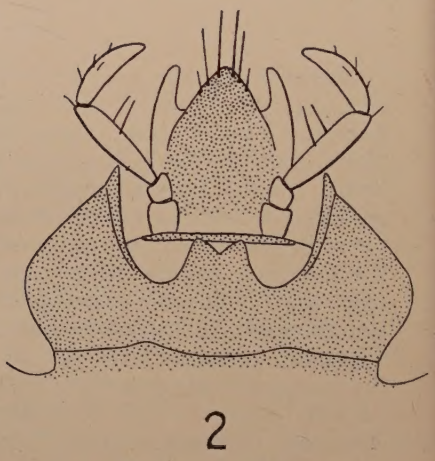
2. Head, pronotum and elytra covered with a fine, short, pubescence; pronotum strongly transverse (greatest width/length = 1·75), with lateral margins considerably expanded; tibiae with strong longitudinal

[1] Pt. I was published in 1940, *Trans. R. Soc. N.Z.* **69**.

ridges; elytral striae obsolete; tarsi not pubescent above, with the penultimate segments only slightly emarginate . . . . *Agonochila.*

–. Head, pronotum and elytra bare, without pubescence; pronotum never obviously transverse (width/length = 1·2, usually = *ca.* 1·0); tibiae smooth, without ridges; elytral striae obvious, tarsi pubescent above, and with the penultimate segments deeply bilobed . . . *Demetrida.*





FIGS. 1–2.—1, *Actenonyx bembidioides* White. 2, *A. bembidioides* White, mentum and labium.

Actenonyx White, figs. 1 and 2.

Actenonyx White 1846, *Voy. Erebus and Terror, Ins.* : 2; Chaudoir, 1871, *Bull. Soc. Nat. Mosc.* **44** (2) : 280; Broun, 1880, *Man. N.Z. Col.* **1** : 61.

Actenonyx bembidioides White 1846 *, *loc. cit.*; Bates, 1871, *Ent. mon. Mag.* **12** : 30; 1874, *Ann. Mag. nat. Hist.* (4) **13** : 275; Broun, 1880, *loc. cit.*

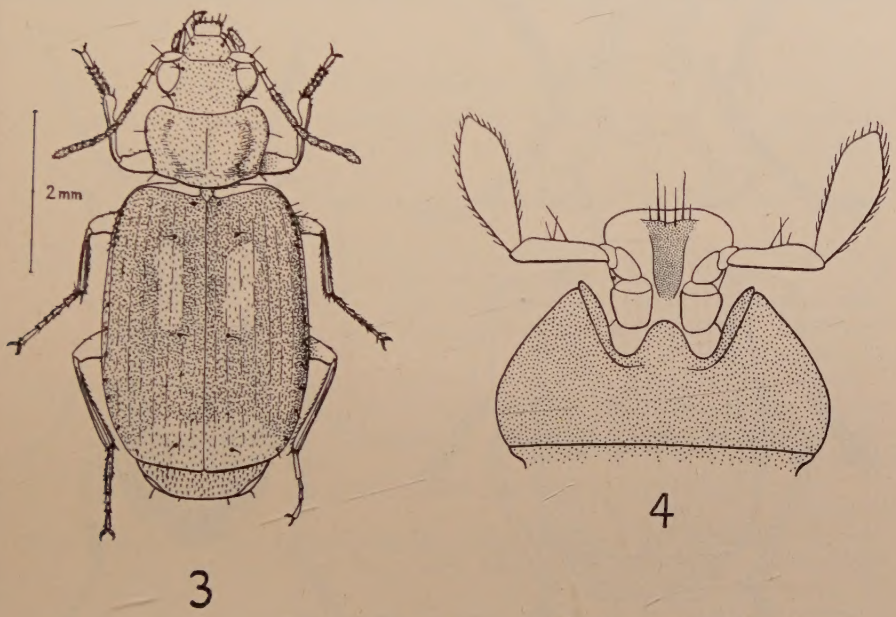
Sphallax peryphoides Bates * 1867, *Ent. mon. Mag.* **4** : 56; *op. cit.*, 1871 : 30; Broun, 1880, *Man. N.Z. Col.* **1** : 61.

* Indicates that the type has been examined.

Length: 7–9 mm. Colour: head, pronotum and elytra, black, sometimes with metallic blue, green, purple or coppery reflections. Legs, antennae, mouth-parts, and ventral surface black.

Elytral striae not deeply impressed, unpunctured; three very small and indistinct setiferous punctures on the third interval. Mentum and ligula as shown in fig. 2. The whole body is covered with strong microsculpture, so that the surface has a dull appearance.

Localities:—N. Island: Colenso (holotype); Auckland; Wellington; Mt. Egmont, 5000 ft.; Mt. Hutt; Ruhapehu Mt.; Ohakune; Tairua. S. Island: Whangapeka Valley; Greymouth; Kumara; Westport; Hokitika; Lake Guyon; Rainbow, Nelson; Boatman's, Reefton; Lake Tekapo; Arthur's Pass, 3000 ft.; Rakaia R., Selwyn; Clipping's Bush, Otago. 65 examples.



Figs. 3–4.—3, *Agonochila binotata* White. 4, *Demetrida nasuta* White, mentum and labium.

Agonochila Chaudoir, fig. 3.

Agonochila Chaudoir 1848, *Bull. Soc. Nat. Mosc.* **21** (1): 119; Broun, 1880, *Man. N.Z. Col.* **1**: 63.

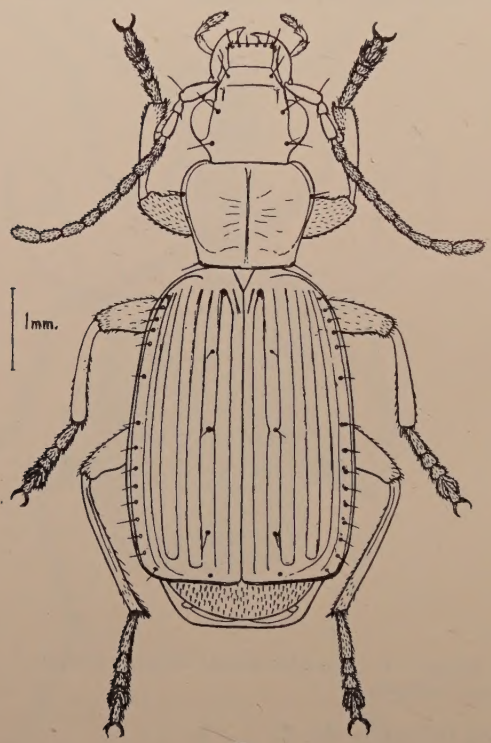
Agonochila binotata (White *), 1846, *Voy. Erebus and Terror, Ins.*: 2 (*Lebia*); Blanchard, 1853, *Voyage au Pôle sud, Zool.* **4**: 12, t. 1, f. 8 (*Gomelina*); Redtenbacher, 1867, *Reise Novara*, Col.: 7 (*Sarothrocrepis*); Chaudoir, 1869, *Ann. Soc. ent. Belg.* **12**: 224; Broun, 1880, *Man. N.Z. Col.* **1**: 63; Sloane, 1898, *Proc. Linn. Soc. N.S. Wales* **23**: 502; 1920, *loc. cit.* **45**: 174–5, 322.

Length: 5–6 mm. Colour: head dark brown; pronotum, antennae, mouth-parts and legs reddish-brown; elytra dark brown with the apex paler, each elytron with a large oval yellow patch in the basal half in the region of the 2nd, 3rd, and 4th intervals. Ventral surface testaceous, with metepisterna brown.

Form very depressed; pronotum with two setiferous punctures on each side. The elytral striae are absent but the intervals are indicated by slightly convex longitudinal ridges. The third interval with three setiferous punctures. Claws slightly pectinate.

Localities :—N. Island : Port Nicholson (holotype); Ohakune; Wellington; Auckland; Te Aroha; Tairua. S. Island : Picton; Greymouth; Kumara; Nelson; Mount Grey, North Canterbury. 38 examples.

Agonochila binotata also occurs in Australia and Tasmania, as do many other species of the same genus. It is therefore evident that the introduction of this species into New Zealand has been relatively recent.



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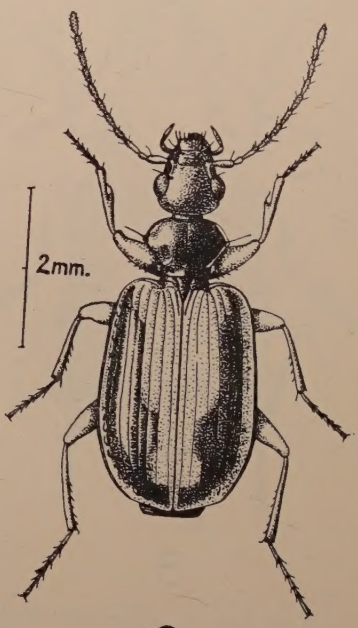

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Figs. 5–6.—5, *Demetrida dieffenbachi* White. 6, *Pentagonica vittipennis* Chaudoir.

Demetrida White.

Demetrida White 1846, *Voy. Erebus and Terror, Ins.*: 2; Guérin, 1847, *Rev. Zool.* **10** : 85; Lacordaire, 1854, *Gen. Col.* **1** : 116; Chaudoir, 1872, *Ann. Soc. ent. Belg.* **15** : 194; Broun, 1880, *Man. N.Z. Col.* **1** : 64.

Demetrida was reduced to a subgenus of *Xanthophaea* by Chaudoir in his "Revision des Callidides" (1872, *loc. cit.*). *Xanthophaea*, however, was described by Chaudoir in 1848, and in accordance with Article 28 of the International Code of Zoological Nomenclature, a genus formed by the union of two

or more genera or subgenera takes the oldest valid generic or subgeneric name of its components. *Demetrida* 1846 must therefore take precedence, and *Xanthophaea* 1848 become a subgenus. This unfortunately necessitates a change of generic name for the numerous Australian species of *Xanthophaea*. The change could only be avoided if differences of generic value could be found to distinguish *Xanthophaea* and *Demetrida*, but I have failed to discover any such characters.

Subgenus *Demetrida* (s.s.).

Diagnosis: tarsi hairy on the upperside, with the penultimate segments deeply bilobed; ligula with four or six setae at the apex; mentum with a large blunt median tooth (fig. 4); elytra not pubescent, but faintly and sparsely punctured on the intervals; the third interval bearing one to three setiferous punctures; elytra obviously expanded from base to apex; claws pectinate.

Key to the species of *Demetrida*.

1. Without a setiferous puncture at the basal angle of the pronotum; pronotum elongate, or if about square then with the sides strongly sinuate . . . . . 2.
–. With a setiferous puncture at each basal angle of the pronotum; pronotum transverse . . . . . 4.
2(1). Elytra brown, with obvious yellow patches, or almost entirely yellow; legs and antennae testaceous; striae always well impressed . . . 3.
–. Elytra black, sometimes with small obscure yellow patches at the shoulders and apex (var. *maculata* var. n.); striae always very faint *sinuata* Broun.
3(2). Head and pronotum dark brown; elytra dark brown with intervals 5 and 6 yellow for one-third of their length from the base; lateral margins and 9th intervals yellowish; a yellow band extending across the elytra near the apex . . . . . *nasuta* White.
–. Head, pronotum and elytra mainly pale yellow, brownish laterally *lineella* White.
4(1). Elytra squarely truncate at the apex; striae well impressed; mouth-parts and legs testaceous, rarely with the femora darker; elytra dark brown . . . . . *dieffenbachi* White.
–. Elytra obliquely truncate at the apex; striae faint; legs dark brown or black; elytra black . . . . . 5.
5(4). Elytra with three setiferous punctures on the 3rd interval, at about $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{5}{6}$ of the length of the interval from the base . . *lateralis* Broun.
–. Elytra with only one setiferous puncture on the 3rd interval, at about $\frac{3}{4}$ of the length of the interval from the base, or without any setiferous punctures . . . . . 6.
6(5). Elytra with intervals quite flat, or even slightly concave; striae faint *moesta* Sharp.
–. Elytra with intervals slightly convex; striae more obvious *moesta* var. *atra* Broun.

Demetrida sinuata Broun 1917 *, *Bull. N.Z. Inst.* **1** : 370.

Length: 7–8 mm. Colour: head, pronotum and elytra black; clypeus, mouth-parts and legs testaceous; antennae reddish; ventral surface piceous.

Sides of the pronotum strongly sinuate in front of the posterior angles which are square, sharp, projecting and reflexed; elytral striae very faint, intervals flat, the 3rd usually with three setiferous punctures.

Localities :—S. Island : Clipping's Bush and Staircase (1500–3500 ft.); Eyre Mountains. 4 examples.

Demetrida sinuata Broun var. **maculata** var. n.

This variety differs from the typical form in having an obscure yellow patch at the base of each elytron on intervals 5 and 6, and an indistinct patch at the apices of intervals 3, 4 and 5. The extreme margins of the elytra, like the epipleurae, are yellow.

Locality : S. Island : Ben Lomond, near Queenstown, Otago. Holotype ♂ in the British Museum.

Demetrida nasuta White * 1846, *Voy. Erebus and Terror, Ins.* : 2; Guérin, 1847, *Rev. Zool.* **10** : 86; Chaudoir, 1872, *Ann. Soc. ent. Belg.* **15** : 195; Broun, 1880, *Man. N.Z. Col.* **1** : 64. fig. 4.

Length : 5–7 mm. Colour : head, pronotum and elytra dark brown, the latter with the basal quarter of intervals 5 and 6 yellow, and a subapical yellow band crossing the ends of intervals 1–7; margins and epipleurae yellow; mouth-parts, legs and antennae testaceous; ventral surface dark brown.

Pronotum with a deep median groove; sides strongly sinuate in front of the posterior angles which are blunt; elytral striae well impressed, intervals flat, the 3rd with three setiferous punctures.

Localities :—N. Island : Auckland; Wellington; Paekakariki; Penrose; Port Chalmers; Kawau I.; Epsom; Hunua. S. Island : Nelson; Stephen's Island; Waimea; Lomond (on trees at night). 56 examples.

Demetrida lineella White * 1846, *Voy. Erebus and Terror, Ins.* : 2, t. 1, f. 3; Guérin, 1847, *Rev. Zool.* **10** : 85; Chaudoir, 1872, *Ann. Soc. ent. Belg.* **15** : 196; Broun, 1880, *Man. N.Z. Col.* **1** : 64.

Length : 7–8 mm. Colour : testaceous, except the sides of the head behind the eyes, the sides of the pronotum and the basal halves of the 6th and 7th intervals, which are dark brown; apical halves of the 2nd, 4th, and 8th intervals with brown marks. Ventral surface entirely testaceous.

Sides of the pronotum slightly sinuate; posterior angles blunt. Elytra strongly narrowed towards the base so that the shoulders are almost absent; striae well impressed, intervals slightly convex; the third interval with two setiferous punctures near the middle.

Localities :—N. Island : Port Nicholson (holotype); Wellington. S. Island : Greymouth; Picton; Mount Arthur; Gordon's Knob, Nelson; Beeby's Knob; Stephen's Island. 57 examples.

Demetrida dieffenbachi White 1843, *in* Dieffenbach, *Travels in New Zealand*, **2** : 273, pro *G. australis* Blanchard (*nec* Dejean). fig. 5.

Demetrida picea Chaudoir 1848 *, *Bull. Soc. Nat. Mosc.* **21** (1) : 77; 1872, *Ann. Soc. ent. Belg.* **15** : 195; Broun, 1880, *Man. N.Z. Col.* **1** : 65.
Gomelina australis Blanchard 1853, *in* Dumont d'Urville, *Voyage au Pôle sud, Zool.* **4** : t. 1, f. 7 (*nec* Dejean).

Length : 6–7 mm. Colour : head, pronotum and elytra dark brown or piceous; margins of the pronotum paler; antennae, mouth-parts, and legs testaceous; ventral surface dark brown.

Sides of the pronotum straight or only very slightly sinuate in front of the posterior angles which are blunt. Elytra squarely truncate at their apices; striae well impressed, intervals slightly convex, the 3rd with three setiferous punctures.

Localities :—S. Island : Lyttleton ; Westport ; Christchurch ; Akaroa ; Mount Algidus, near Rakaia Forks, Ashburton ; Otira Gorge. 30 examples.

Demetrida lateralis Broun 1910 *, *Bull. N.Z. Inst.* **1** : 10.

Length : 7 mm. Colour : head, pronotum and elytra black ; mouth-parts, antennae, tibiae and tarsi brown ; femora and ventral surface of body black.

Pronotum distinctly transverse with the sides slightly sinuate in front of the posterior angles which are square but blunt ; a pronounced depression at the base on each side. Elytra with the striae faint, intervals flat or only very slightly convex, the 3rd with three setiferous punctures.

Locality :—S. Island : Mount Cook, 2500 ft. (unique type).

Demetrida moesta Sharp * 1878, *Ent. mon. Mag.* **15** : 47 ; Broun, 1880, *Man. N.Z. Col.* **1** : 66.

Length : 6·5 mm. Colour : black, mouth-parts and tarsi piceous ; antennae brown with the 1st and 3rd segments darker.

Differs from *D. lateralis* in lacking the depression at the base of the pronotum ; striae fainter ; intervals quite flat, without setiferous punctures, or with one only, on the third interval, near the apex.

Localities :—S. Island : Otago ; Moeraki ; Eyre Mountains ; Bold Peak, Wakatipu ; Mount Dick ; Lomond. 7 examples.

Demetrida moesta Sharp var. *atra* Broun 1880 *, *Man. N.Z. Col.* **1** : 66 (*ater*).

Length : 7–8 mm. Differs from the typical form only in having the elytral intervals slightly convex and the striae more distinct.

Localities :—S. Island : Dunedin ; Taieri ; Wedderburn. 8 examples.

In the lists of coleoptera in the "*Index Faunae Novae Zealandiae*", by Hutton, 1904, and in "*New Zealand Beetles and their Larvae*", by G. V. Hudson, 1934, *Lebia bembidioides* Fairmaire and *Lebia posticalis* Guérin are recorded. The former species was described from Tahiti and is synonymous with *Crossonychus viridis* Dejean from Chili and the Argentine. There are no authentic records of either species from New Zealand.

The genus *Pedalopia* Castelnau was erroneously referred to the Lebiini by Broun. Through the kindness of Dr. S. L. Straneo I have been able to examine a cotype of *Pedalopia novaezelandiae* Castelnau 1867, which proves to be synonymous with *Dichrochile cinctiger* Broun 1886 (Licinini) **syn. nov.** Castelnau correctly placed the genus in the Licinini, recognising its affinity with *Dichrochile*.

Pentagonicini.

Two genera occur in New Zealand. They may be distinguished as follows :—

Head sharply constricted behind to a narrow neck ; labrum large ; mandibles flattened, without scrobes ; eyes of normal size ; pronotum smooth and shining, roughly pentagonal in shape . . . . . *Pentagonica.*

Head not sharply constricted behind; labrum normal; mandibles with scrobes; eyes very large and hemispherical; pronotum usually roughly sculptured . . . . . *Scopodes*.

Pentagonica Schmidt-Goebel, fig. 6.

Pentagonica Schmidt-Goebel 1846, *Faunula Col. Birm.* : 47.
Wakefieldia Broun 1880, *Man. N.Z. Col.* **1** : 62.

Pentagonica vittipennis Chaudoir * 1877, *Bull. Soc. Nat. Mosc.* **52** (1) : 217; Sloane, 1920, *Proc. Linn. Soc. N.S. Wales* **45** : 323, fig. 6.

Wakefieldia vittata Broun * 1880, *Man. N.Z. Col.* **1** : 62.

Length : 4·5–5·0 mm. Colour : head and pronotum shining black; labrum brown; elytra testaceous with an irregular black band on each, narrowed at each shoulder, widening towards the apex; the epipleura and the margins of the elytra testaceous; legs and antennae testaceous; ventral surface black.

The elytral striae are faint and unpunctured; intervals slightly convex.

Localities :—N. Island : Hunua, Maketu; Auckland; Wellington; Marainui, Bay of Islands. S. Island : Upper Maitai, Nelson. 9 examples.

Scopodes Erichson.

Scopodes Erichson 1842, *Arch. Naturg.* (1) **8** : 123; Bates, 1873, *Trans. ent. Soc. Lond.* **1873** : 320; Broun, 1880, *Man. N.Z. Col.* **1** : 67.
Helaeotrechus White 1846, *Voy. Erebus and Terror, Ins.* : 5.
Periblepusa Redtenbacher 1867, *Reise Novara Col.* **2** : 20.

Key to the genus *Scopodes*.

1. Posterior angles of the pronotum obvious, or at least indicated by a distinct tooth, sometimes very obtuse and blunt; usually with two setiferous punctures on each side of the pronotum, at the anterior and posterior angles; legs testaceous or dark in colour . . . . . 2.
–. Posterior angles of the pronotum entirely absent; each side of the pronotum with only one setiferous puncture, at the anterior angle; legs dark in colour . . . . . 6.
2(1). Strigae between the eyes obsolete, longitudinal ridges smoothed out; colour black, aeneous-black or coppery; setiferous punctures not marked by blue spots . . . . . 3.
–. Strigae between the eyes strong, very distinctly scored; colour variable, black, coppery or metallic green, each setiferous puncture of the elytra usually the centre of a blue spot . . . . . 4.
3(2). Small, length *ca.* 3·5 mm.; colour shining aeneous-black; clypeus fused with the frons, the suture almost obliterated; elytral striae absent, except for a slight trace of the sutural stria; elytra without setiferous punctures on the disc; pronotum more transverse, ratio maximum width/length = *ca.* 1·40 . . . . . *basalis* Broun.
–. Larger, length *ca.* 5 mm.; colour coppery, head aeneous; suture separating frons and clypeus very distinct; all elytral striae visible but faint, the 3rd interval with three setiferous punctures; pronotum less transverse, ratio maximum width/length = *ca.* 1·20 (fig. 7) *bryophilus* Broun.
4(2). Size small, *ca.* 4 mm. in length; strigae between the eyes coarse, at most 16 in number (counting ridges or grooves between the middle of the

eyes); sides of the pronotum in front of the tooth which represents the posterior angle, usually straight; head and pronotum usually bright metallic green, coppery at the sides; elytra aeneous-brown, coppery at the sides; setiferous punctures marked by bright blue spots; legs testaceous . . . . . *multipunctatus* Bates.

–. Size larger, usually over 4·5 mm. in length; strigae between the eyes finer, over 22 in number between the middle of the eyes; sides of the pronotum always sinuate in front of the posterior angles; colour aeneous-black, green or bronze; legs testaceous or dark brown . . 5.

5(4). Length *ca.* 4·5 mm.; elytral intervals irregular but distinctly convex, at least at the base; elytra aeneous-black in colour, strongly sericeous; each setiferous puncture of the elytra usually the centre of a dull blue spot; head and pronotum aeneous in colour (fig. 8) *elaphroides* White.

–. Length 5 mm. or more; elytral intervals regular and quite flat; striae faint but regular; elytra dull cupreous, aeneous-green, greenish-blue or black in colour; each setiferous puncture of the elytra usually the centre of a bright blue spot; head and pronotum cupreous or metallic green . . . . . *prasinus* Bates.

6(1). Strigae between the eyes obsolete, the surface smooth; colour always shining black or aeneous-black; the elytral intervals flat . . . . 7.

–. Strigae between the eyes strongly marked, the surface ridged; if with strigae rather faint, then with the elytral intervals convex; colour black, coppery or green . . . . . 9.

7(6). Pronotum narrow (width/length = *ca.* 1·30); elytra strongly narrowed towards the base, shoulders rounded off (fig. 9); margins of the pronotum and elytra reduced to a thin raised line, with no marginal groove . . . . . *levistriatus* Broun.

–. Pronotum broader (width/length = 1·32–1·50); elytra with shoulders more prominent (figs. 10, 11); margins of the pronotum and elytra more prominent and reflexed so that there is a distinct marginal groove 8.

8(7). Pronotum with the anterior angles rounded (fig. 10); ratio width/length of pronotum = *ca.* 1·4 . . . . . *laevigatus* Bates.

–. Pronotum with the anterior angles obtuse but sharp at the apex, not rounded (fig. 11); ratio of width/length of pronotum = *ca.* 1·5 *cognatus* Broun.

9(6). Sides of the pronotum distinctly sinuate; head and pronotum cupreous, elytra dark cupreous in colour . . . . . *pustulatus* Broun.

–. Sides of the pronotum straight or curved outwards, never sinuate inwardly; colour black, cupreous or green . . . . . 10.

10(9). Large, almost always over 5 mm. in length; colour usually metallic cupreous, sometimes metallic green or black; strigae on the head fine and numerous, over 30 in number . . . . . *versicolor* Bates.

–. Small, less than 4·5 mm. in length; colour aeneous or black; segments 2 and 3 of the antennae brown; strigae on the head coarser, fewer than 22 in number from side to side; elytral intervals convex *edwardsi* Bates.

Scopodes basalis Broun * 1893, *Man. N.Z. Col.* **5** : 1012.

Length : 3·25–3·75 mm. Colour : entirely aeneous-black.

Locality : S. Island : Mount Maungatua, Otago. 2 examples.

Scopodes bryophilus Broun * 1886, *Man. N.Z. Col.* **4** : 882. fig. 7.

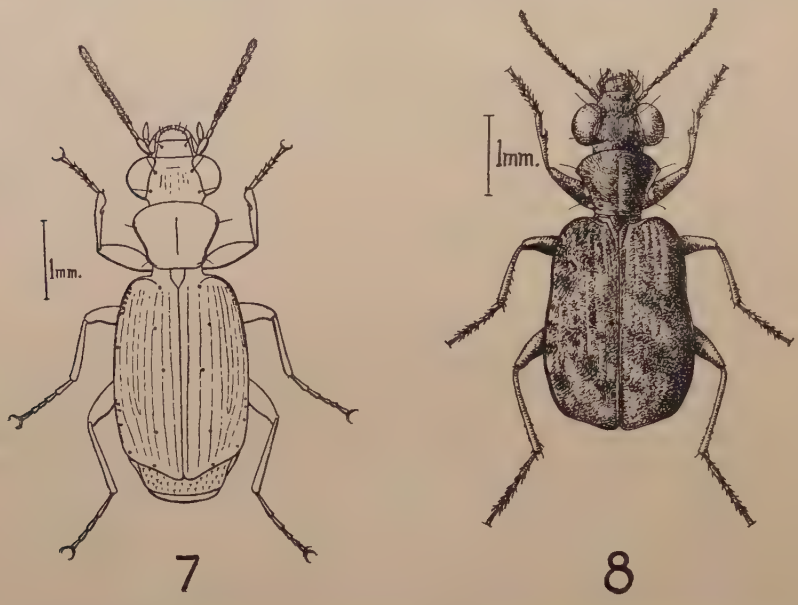
Length : 4·5 mm. Colour : aeneous or coppery; antennae, legs and mouth-parts black.

The sides of the pronotum are sinuate in front of the posterior angles which are quite prominent but rounded.

Locality: S. Island: Maungatua, Otago. 2 examples.

Scopodes multipunctatus Bates * 1878, *Ent. mon. Mag.* **15** : 58; Broun, 1880, *Man. N.Z. Col.* **1** : 69.

Length: 4 mm. Colour: head and pronotum metallic green, coppery red at the sides; clypeus and labrum metallic green; mandibles reddish-brown; legs, antennae and palpi



Figs. 7–8.—7, *Scopodes bryophilus* Brown. 8, *Scopodes elaphroides* White.

testaceous or brown, darker towards their extremities; elytra dull aeneous-brown, coppery red at the sides; the three setiferous punctures on the third interval and those at the margins of the elytra, each the centre of a bright blue spot. Ventral surface shining aeneous-black.

The elytral striae are marked by faint elongate punctures; intervals flat.

Localities:—N. Island: Auckland; Manukau; Waimarino; Thames; Te Aroha; Taranaki. S. Island: Greymouth. 10 examples.

Scopodes elaphroides White * 1846, *Voy. Erebus and Terror, Ins.*: 5, t. 1, f. 5 (*Helaeotrechus*); Chaudoir, 1872, *Bull. Soc. Nat. Mosc.* **45** (1) : 390; Broun, 1880, *Man. N.Z. Col.* **1** : 68. fig. 8.

Dromius fossulatus Blanchard *, 1853, *Voyage au Pôle sud, Zool.* **4** : 9, t. 3, f. 16; Broun, 1880, *Man. N.Z. Col.* **1** : 68 (**syn. n.**).
Periblepusa elaphroides Redtenbacher * 1867, *Reise Novara, Col.* **2** : 21, t. 1, f. 9 (**syn. n.**).

Length: 4–5 mm. Colour: head and pronotum aeneous or bronze; elytra aeneous-black, the setiferous punctures sometimes marked with dull blue; legs testaceous, darker towards their extremities (N. Island form), or dark brown (S. Island form); antennae

with the four basal segments testaceous, remainder dark brown; palpi brown; ventral surface black.

The elytral striae are marked by elongate ill-defined punctures; intervals distinctly convex, especially towards the base; the 3rd interval with three setiferous punctures.

Localities :—N. Island : Auckland; Parua; Manukau; Waitakere; Thames; Waikato; Waimarino; Te Aroha; Wellington; Paekakariki; Russell; Howick. S. Island : Greymouth; Westport; Nelson; Murchison; Beeby's Knob; Flora Camp, Mount Arthur : 2500 ft.; Mount Dick; Arnaud; Springfield.

I am indebted to Dr. R. Jeannel for permission to examine the type of *Dromius fossulatus* Blanchard at the Paris Museum, and to Dr. K. Holdhaus of Vienna for the loan of an original specimen of *Periblepusa elaphroides* Redtenbacher.

Scopodes prasinus Bates * 1878, *Ent. mon. Mag.* **15** : 57; Broun, 1880, *Man. N.Z. Col.* **1** : 69.

Scopodes tardus Broun *, 1882, *N.Z.J. Sci.* **1** : 226; 1886, *Man. N.Z. Col.* **3** : 757 (**syn. n.**).
Scopodes speciosus Broun *, *Man. N.Z. Col.* **5** : 1012 (**syn. n.**).

Length : 5–6 mm. Colour : head, clypeus, labrum and pronotum metallic green; elytra dull aeneous-green, or bluish-green; legs testaceous or dark brown, sometimes testaceous beneath; tarsi darker; antennae dark blue with the bases of segments 2, 3 and 4 testaceous or brown; mouth-parts dark brown. Ventral surface metallic blue or green. Dorsal surface dull bronze or black in colour. Elytral striae very faint; intervals flat, the third with three setiferous punctures, each surrounded by a blue spot.

Localities :—S. Island : Powell; Hermitage, Mount Cook; Preservation Inlet; Moa Basin; Westport; Mount Arthur; Mount Arnaud; Greymouth. 12 examples.

Scopodes levistriatus Broun * 1886, *Man. N.Z. Col.* **4** : 829. fig. 9.

Length : 3·75 mm. Colour : entirely shining black.

Locality :—S. Island : Nelson, Wangapeka Valley. 1 example.

Scopodes laevigatus Bates * 1878, *Ent. mon. Mag.* **15** : 58; Broun, 1880, *Man. N.Z. Col.* **1** : 70; 1893, *op. cit.* **5** : 1013. fig. 10.

Scopodes instabilis Broun * 1917, *Bull. N.Z. Inst.* **1** : 371 (**syn. n.**).

Length : 3·5–4·5 mm. Colour : entirely shining black.

Localities :—S. Island : Moa Basin, Canterbury; Capleston; Boatman's, Reefton; Mount Owen; Point Hill; Mount Arnaud; Greymouth; Arthur's Pass; Tophouse; Three Channel Flat, Nelson. 31 examples.

Scopodes cognatus Broun * 1886, *Man. N.Z. Col.* **4** : 882. fig. 11.

Length : 3·5 mm. Colour : entirely shining black.

Localities :—S. Island : Maungatua ; Taieri. 3 examples.

Scopodes pustulatus Broun * 1882, *N.Z.J. Sci.* **1** : 227; 1886, *Man. N.Z. Col.* **3** : 757.

Scopodes nigripes Broun * 1910, *Bull. N.Z. Inst.* **1** : 11. (**syn. n.**).

Length : 4·0–4·5 mm. Colour : head and pronotum bronze; elytra bronze or aeneous-black. Legs, antennae and palpi dark brown or black. Elytral striae faint, but intervals distinctly convex.

Localities :—N. Island : Wellington; Raurimu; Taranaki. S. Island : Hope, Nelson. 10 examples.

Scopodes versicolor Bates * 1878, *Ent. mon. Mag.* **15** : 57; Broun, 1880, *Man. N.Z. Col.* **1** : 68.

Scopodes venustus Broun * 1882, *N.Z.J. Sci.* **1** : 226; 1886, *Man. N.Z. Col.* **3** : 756 (**syn. n.**).
Scopodes planus Broun * 1882, *N.Z.J. Sci.* **1** : 226; 1886, *Man. N.Z. Col.* **3** : 756 (**syn. n.**).
Scopodes viridis Broun * 1903, *Ann. Mag. nat. Hist.* (7) **11** : 612 (**syn. n.**).

Length : 4·5–5·5 mm. Colour : aeneous, cupreous, metallic green or blue-black; legs, antennae and palpi of similar metallic colour. Elytral striae faint and intervals only slightly convex.

Localities :—S. Island : Otira Pass; Nelson; Moa Basin, Canterbury; Ida Valley; Wangapeka; Kiwi Bush; Buller; Bealey River; Greymouth; Westport; Halkin Creek; Arthur's Pass. 32 examples.

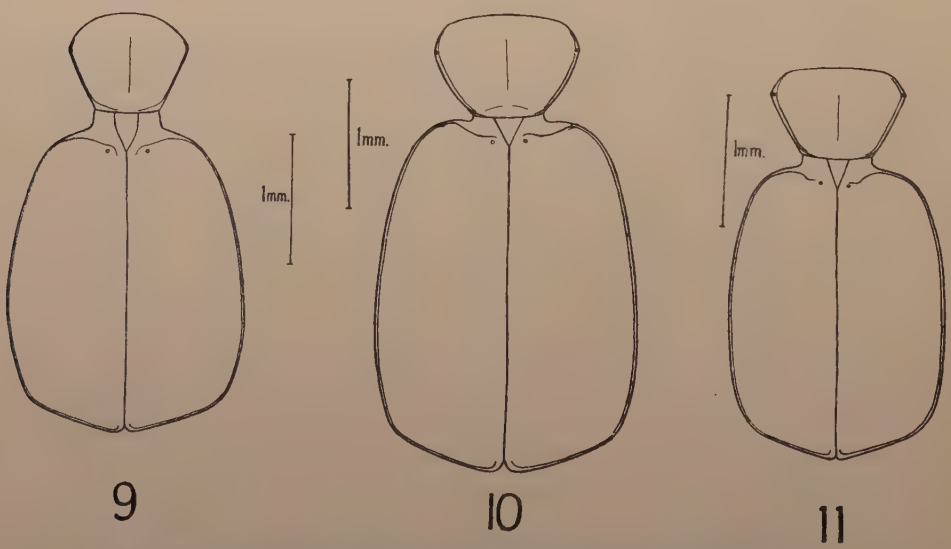
Scopodes edwardsi Bates * 1878, *Ent. mon. Mag.* **15** : 58; pro *S. aterrimus* Bates 1874, *Ann. Mag. nat. Hist.* (4) **8** : 276 (*nec* Chaudoir); Broun, 1880, *Man. N.Z. Col.* **1** : 68.

Scopodes nigrinus Sharp * 1882, *Trans. ent. Soc. Lond.*; 77; Broun, 1893, *Man. N.Z. Col.* **5** : 1011 (**syn. n.**).
Scopodes antennalis Broun * 1886, *Man. N.Z. Col.* **4** : 883; 1893, *op. cit.* **5** : 1013 (**syn. n.**).

Length : 4·0–4·5 mm. Colour : head and pronotum shining black; elytra dull black, sericeous; antennae black with the 2nd and 3rd segments brown.

Elytral striae faint; intervals distinctly convex.

Localities :—N. Island : Wellington; Kokoro; Parua. S. Island : Boatman's, Reefton; Lomond; Lake Tekapo; Ida Valley; George Sound; Greymouth; Routeburn; Lake Wakatipu; Wedderburn; Kumara; Mount Hope; Maggie Creek, Nelson; Moa Basin, Canterbury; Paradise Peak (4500 ft.), Nelson; Three Channel Flat, Nelson. 52 examples.

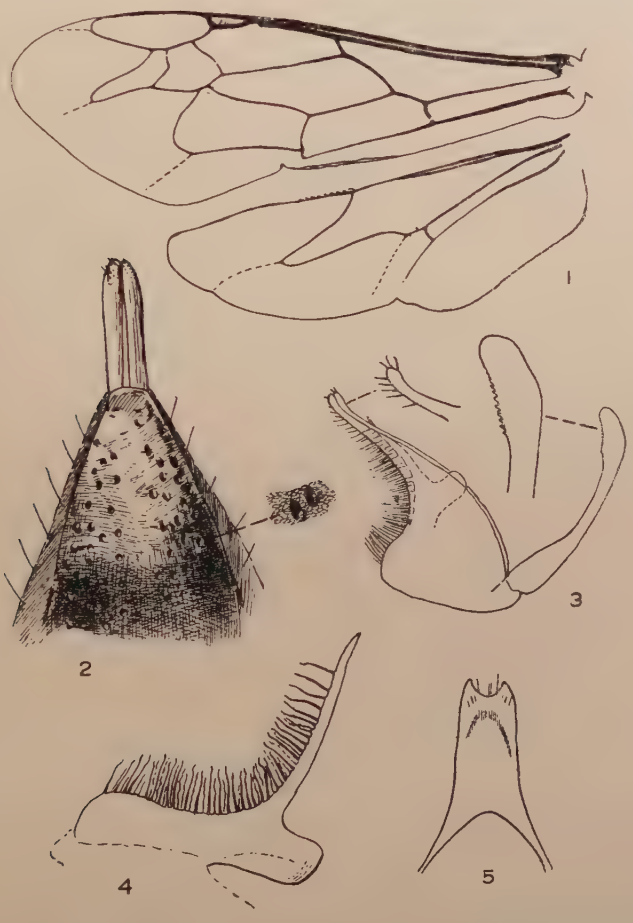


Figs. 9–11.—9, *Scopodes levistriatus* Brown. 10, *Scopodes laevigatus* Bates. 11, *Scopodes cognatus* Brown, pronotum and elytra.

AN APPARENTLY UNDESCRIBED *TACHYSPHEX* (HYMENOPTERA, LARRIDAE) FROM TRINIDAD, B.W.I.

By Francis X. Williams.
(*Honolulu, Hawaii.*)

In a small collection of aculeate wasps received from Dr. Edward McC. Callan of the Imperial College of Tropical Agriculture, Trinidad, B.W.I., is a species of *Tachysphex* which is herewith described as a new species.

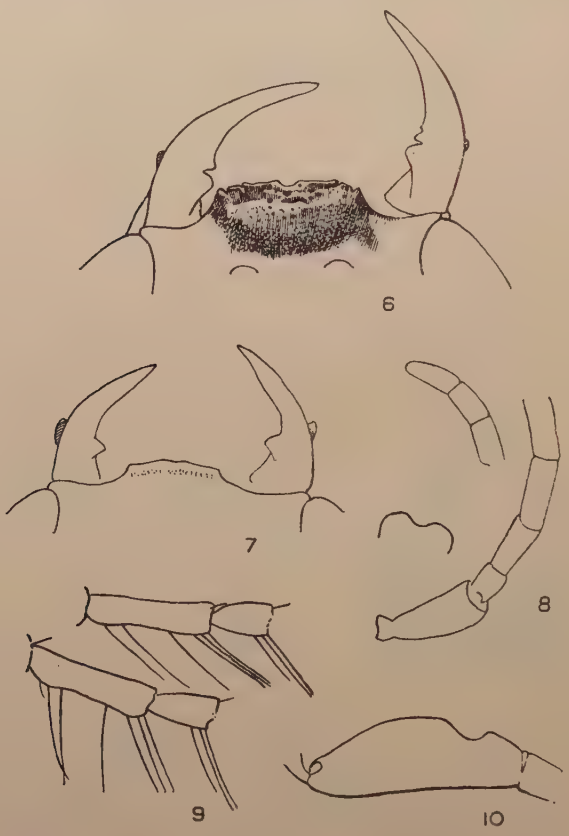


Figs. 1–5.—*Tachysphex blatticidus* sp. n. 1, wings, ♀; 2, pygidium, ♀; 3, armature, ♂, from side; 4, armature, ♂, inner paired piece, from side; 5, last visible ventral segment, ♂.

Tachysphex blatticidus sp. n.

Female, type. Length 8 mm. Head slightly wider than thorax, the latter short. Black; mandibles with a red band at about their middle; spurs and spines pale brown,

tarsal comb very pale, almost whitish. Clypeus subtruncately produced, notched mesially and with three lateral teeth; the rather broadly depressed margin nearly impunctate, shining, the bevel with a few large deep punctures; disc with fine well-separated punctures towards base and sides, sparse large punctures and polished area mesially towards bevel; antennal joint 3 shorter than 4, 4 and 5 subequal, interocular space at vertex greater than 2 + 3 but a little less than 3 + 4; frons rather opaque, with fine well-spaced punctures in an exceedingly fine reticulate field, the ocellar area and vertex more shining; a weak impressed line from anterior ocellus not reaching to near base of antennae; a stronger line



Figs. 6–10.—*Tachysphex blatticidus* sp. n. 6, clypeus, ♀; 7, clypeus, ♂; 8, labrum and portion of antennae, ♀; 9, portion of tarsal comb, 2 ♀; 10, fore femur, ♂, from side.

extending posteriorly into the postocellar arcuate depression, whence another impressed line extends towards the occiput; dorsum of thorax polished, the punctures of the scutum well separated except at base, scutellum with finer punctures, postscutellum still more finely and sparsely punctured; pleura with separate rather delicate punctures; disc of propodeum not very shining, with rudimentary diverging striae basally, becoming finely rugose up to the slight shining apical depression and finely reticulate at sides, the pleura polished, with fine piliferous punctures only; posterior face shining with a cuneiform fovea, and some transverse wrinkles above at sides, separated from the disc by a fine mesially interrupted carina. Apex of marginal cell narrowly rounded-truncate. Fore tarsal

comb of fine long bristles. Pygidium shining, with rather large and sparse punctures. Vestiture : face and occiput with fairly dense pale golden pubescence extending to ocellar area; generally paler and sparse on thorax; abdomen with pale sericeous golden bands on the slightly depressed apical portion of segments 1–5.

Male, allotype. Length 6·75 mm. Much like female, subtruncate clypeal process slightly emarginate mesially, no lateral teeth (except lateral angles); antennae relatively stouter; joints 2 + 3 less than, and 3 + 4 about equal to or very slightly less than interocular space; last visible ventral segment emarginate at apex; inner paired piece of aedeagus bearing a comb of fine erect hair.

Specimens examined :—B.W.I., Trinidad : St. Augustine, type ♀ and allotype ♂, ♂ and 9 ♀ paratypes, 15.viii.1938 (*E. McC. Callan*); B.W.I., Trinidad, ♂ paratype, iii.1935, No. 3601 (*D. Vesey-FitzGerald*).

Additional specimens not examined :—B.W.I., Trinidad : St. Augustine, 8 ♂ and 6 ♀, 15.viii.1938 (*E. McC. Callan*).

Type, allotype and 3 ♀♀ paratypes will be deposited in the British Museum; ♂ and 3 ♀ paratypes in the U.S. National Museum, Washington, D.C.; ♂ (No. 3601) and 3 ♀ paratypes in the collection of the Hawaiian Sugar Planters' Association Experiment Station, Honolulu, Hawaii; 8 males and 6 females in the collection of the Imperial College of Tropical Agriculture, Trinidad, B.W.I.

Named on account of its habit of preying on cockroaches (Blattidae), several of the prey being pinned with the wasp specimens.

There is little variation in the series. The intermediate tooth on each side of the clypeus of the female is sometimes narrower and more acute. The postocellar arcuate line is rather weak mesially, suggesting a wedge rather than an arch there.

This insect has one or more near relatives on the South American mainland. A female *Tachysphex* taken by me from the environs of Belem, Para, Brazil, differs in having the tarsal comb of somewhat shorter, stouter and darker bristles.

A NEW SPECIES OF *LEOTICHIUS* (HEMIPTERA HETEROPTERA LEOTICHIIDAE) LIVING IN CAVES IN MALAYA

By W. E. China, M.A.

British Museum (Natural History).

In 1933, *Ann. Mag. nat. Hist.* (10) **12** : 180–196, I established a new family Leotichiidae for the genus *Leotichius* Distant 1904, which had been based on a single male specimen (*Leotichius glaucopis* Dist.) taken at Rangoon, Burma. Nothing at all was known about the biology of this species nor even of the type of habitat. It was, therefore, with great interest that I received through the

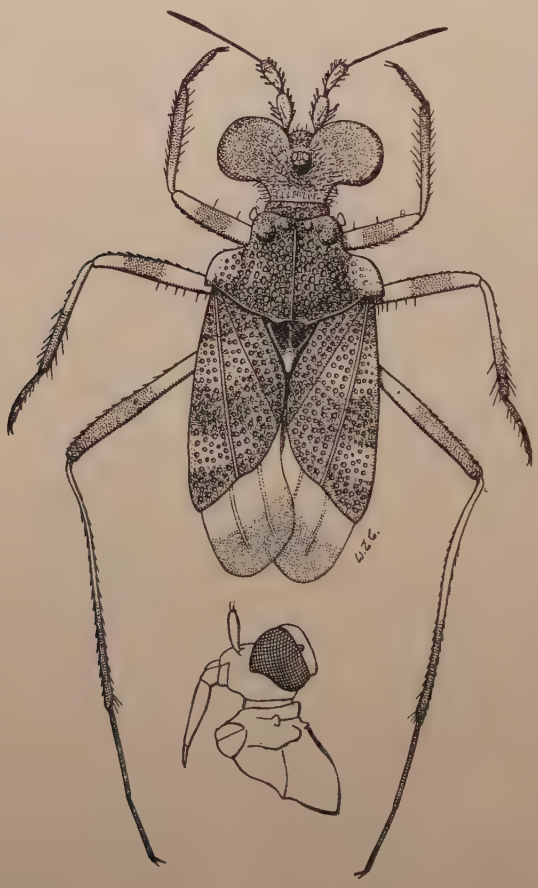


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Fig. 1.—*L. speluncarum* sp. n.; inset, side view of head and pronotum.

courtesy of my friend, Mr. N. C. E. Miller of the Department of Agriculture, Kuala Lumpur, several specimens belonging to this family, collected by Mr. H. T. Pagden in limestone caves at Gua Berang in the Malayan province of Perlis, where they were found running on deposits of bat guano. These specimens proved to be distinct from *Leotichius glaucopis* Dist. and are herewith described.

Leotichius speluncarum sp. n., figs. 1 and 2.

Colour: Dark brown covered with dirty white powder (especially in punctures) and pubescence which give a general dark-greyish tint to the insect; the dilated lateral margins of posterior lobe of pronotum greyish-white, an obscure spot on corium near costal margin on a level with apex of scutellum and another towards apex of corium extending from costal margin to median nervure a little before its junction with the apical margin of corium, greyish-white; membrane hyaline with the apical half infuscate; apex of scutellum white, the extreme apex infuscate; functional area of eyes, reddish, dorsal surface black; basal segment of antenna sordid yellow, second segment sordid yellow, somewhat infuscate on apical half, the third and fourth segments dark brown; rostrum dark brown, with the base of penultimate segment sordid yellow; legs dark sordid yellowish-brown, the tibiae somewhat paler than the femora but with the apices infuscate, the femora with an obscurely delimited broad dark brown subapical annulation; tarsi infuscate towards apices. Underside dark brown with the acetabula and the propleura sordid yellowish-grey; the prosternum and margins of acetabula with greyish-white pruinosity. Pubescence greyish-white (fig. 1).

Fig. 2.—*L. speluncarum* sp. n., left, paramere; right, basal plates and aedeagus.

Structure: Head more than twice as wide across eyes as long in middle (57 : 27); relative lengths of antennal segments 15 : 13 : 22 : 17; bucculae strongly elevated, fused posteriorly; rostrum extending to anterior coxae, relative lengths of rostral segments 3 : 4 : 23 : 10; dorsal surface of eyes granulose, the inner areas on each side of ocelliferous tubercle densely clothed with semi-erect short translucent scale-like bristles; neck with a dense tomentose whitish pubescence; two basal segments of antenna also with translucent scale-like bristles; apex of head between eyes and antennae with a thick whitish pruinosity. Pronotum about one and a half times wider across humeral angles than long in middle

(69 : 45); anterior lobe across tubercles of calli about half as wide as posterior lobe across humeral angles (35 : 69); four tubercles of calli only moderately elevated, more or less rounded, the two small median tubercles rather indistinct; the translucent laminate process projecting from each side of anterior lobe axe-head shaped; median carina obsolescent on disc of posterior lobe; the pair of tubercles on posterior margin rather indistinct and placed more closely together than in *L. glaucopis*; whole surface of pronotum, except calli, densely and deeply punctate. Scutellum with apex much less strongly laterally compressed than in *L. glaucopis* and not forming the spatulate elevated process found in that species; the median carina much more distinct than in the Burmese species. Hemielytra, with clavus and corium, densely, regularly punctate (areolate), only a single strongly raised median sector; costal margins obsoletely finely serrate; only two longitudinal veins visible in membrane; costal margin at apex of corium convexly prominent before membrane, the costal margin of corium and membrane not in one continuous curve as in *L. glaucopis*. Hind-wing with a median nervure branching into two at middle of wing and a simple nervure between the first and the anal fold (this is probably present in *L. glaucopis* but was not noticed in my former description). Mesosternum with a median longitudinal furrow; metasternum with a median longitudinal carina. Legs longer and more slender than in *L. glaucopis*, the hind tibiae distinctly sinuate. Front femur slightly incrassate, armed below rather irregularly with two rows of about four short, erect bristles, those of each row divergent; front tibia slightly shorter than femur, armed below with a double row (divergent) of longer sub-erect bristles. Upper surface of femur and tibia scabrous with short depressed hairs; middle femur distinctly longer than tibia, armed below, on basal two-thirds, with a single row of about ten erect spines, apical third granulate, trochanter with a single erect spine; tibia and tarsus armed as in front legs; hind femora shorter than tibia, unarmed below, tibia and tarsus with short depressed hairs larger and more erect at apex of tibia. Relative lengths of legs :—

	Coxa	Trochanter	Femur	Tibia	Tarsus	Claws
Front leg . .	17	10	50	43	16	5
Middle leg . .	17	10	60	46	10 : 14	5
Hind leg . .	23	11	75	92	32 : 23	5

Male genitalia similar to those of *L. glaucopis* Dist. differing only in absence of acute process at base of chitinised distal part of phallosoma (fig. 2).

Female with two triangular subgenital plates, ovipositor apparently absent.

Length : ♂ 2·30 mm., ♀ 2·45 mm.

Breadth across humeral angles of pronotum : ♂ and ♀ 1·0 mm.

Habitat Malaya : province Perlis, Gua Berang, 3 ♂♂, 1 ♀, running on deposits of bat guano in limestone cave, xi.1940 (*H. T. Pagden*).

Leotichius speluncarum is closely allied to *L. glaucopis* Dist. but differs in the smaller size, more slender build, darker colour, different colour pattern, less distinct median carina of pronotum on disc of posterior lobe, less distinctly elevated tubercles of anterior lobe, tubercles of posterior margin less distinct and placed closer together, apex of scutellum much less distinctly elevated, hemielytra with costal margin at apex of corium convexly prominent and not in same curve as margin of membrane, the latter with only two nervures, and in the longer and more slender legs with the hind tarsi more than half length of tibiae.

The discovery of *Leotichius speluncarum* throws no further light on the systematic position of the family. The peculiar habitat might show relationship with several families.

OXYTHRIPS AGATHIDIS SP. N. (THYSANOPTERA, THRIPIDAE) FROM QUEENSLAND

By G. D. Morison, F.R.E.S.

(*North of Scotland College of Agriculture, Aberdeen.*)

On 28.v.1936 Mrs. H. Verers Andrewartha sent me for identification some Thysanoptera which she had received from the Department of Agriculture, Queensland. I thank her and the finders of the three species in the collection for submitting it to me for naming and I apologise for the delay in describing the species which I recognised as new in 1936. All measurements in this paper are in μ (0·001 mm.). The species are as follows.

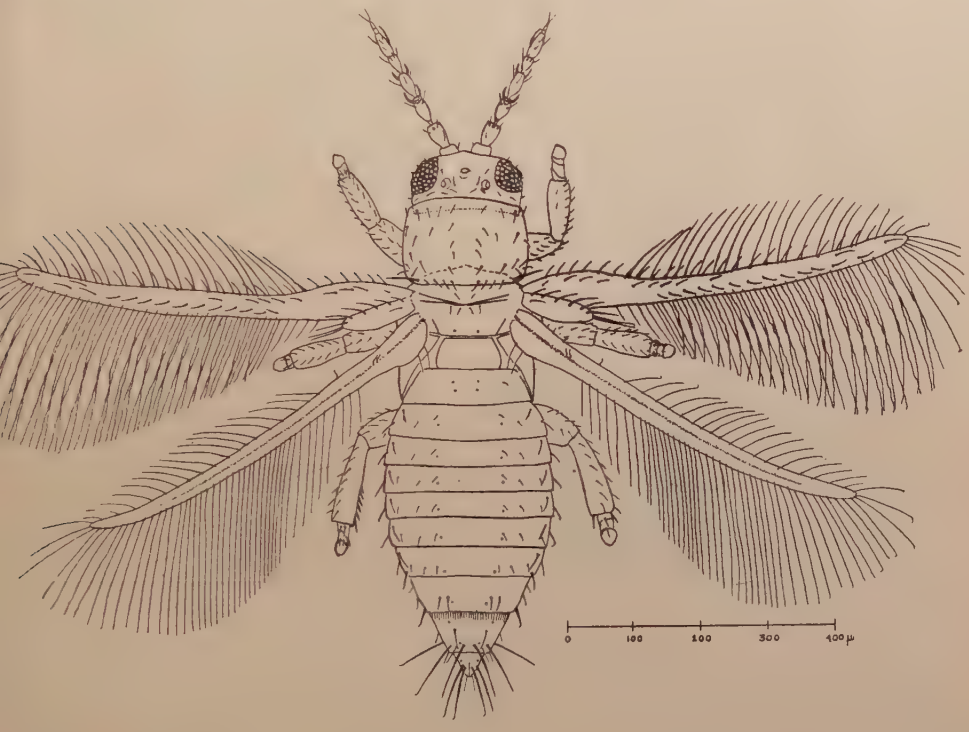

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Fig. 1.—*Oxythrips agathidis* sp. n.

(i) *Hercinothrips bicinctus* (Bagnall).

2 ♀♀, 4 larvae II on banana with " Silver rust ". Queensland.

(ii) *Taeniothrips* (*Physothrips*) *nigricornis* (Schmutz, 1913).

3 ♀♀, 2 larvae II on beans, Nambour, Queensland, 17.viii.1935 (*N. E. H. Caldwell*). A widely distributed species recorded from Ceylon, India, Queensland, Java, Sumatra, Formosa, China and other sub-tropical and tropical regions

on many different plants. Priesner (1938, *Treubia* **16** : 469–471) described the male, and gave the synonymy, geographical distribution and a list of the plants from which it has been recorded. The chief synonyms are *usitatus* Bagnall 1913, *usitatus* var. *cinctipennis* Bagnall 1916, *longistylus* Karny 1922. Independently of Priesner I had reached the same conclusions on synonymy, but I used one of Bagnall's names for the specimens which came from Malaya, India, Sumatra and Queensland. Also I agree with Priesner on the affinities of this species with *Odontothrips*.

(iii) **Oxythrips agathidis** sp. n.

4 ♀♀, 3 ♂♂, 7 larvae II on Kauri Pine, *Agathis robusta*, S.E. QUEENSLAND : Imbil, 4.xi.1935, 35/9502 (*A. R. Brimblecombe*). Since the specimens have the same general facies and as they were found on the one species of plant, I consider them a single species which should be placed in *Oxythrips*, despite the fact that the male lacks strong, short spines on abdominal tergite IX, and the larva II instar lacks them on the dorsum of abdominal segments IX and X.

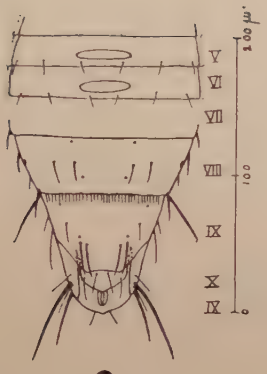
Uzel did not describe *Oxythrips* on a genotype. Hood (1916, *Insec. Inscit. Mens.* **4** : 37) designated *O. ajugae* Uzel as type of the genus, in which he recognised two groups, more or less following Uzel. There are apparently 21 described species in the world and 2 recent species which should be included with 6 fossil species in *Protoxythrips* Priesner.

O. agathidis approaches *Chaetanaphothrips* and *Anaphothrips* but in a direction different from *O. ferulae* Pr. It is the first species of its genus to be described from Australia.

Holotype ♀ (macropterous) (fig. 1) : General body colour lemon yellow with the antennae and chaetotaxy brown. The cuticle is pale brownish-yellow, becoming brown on the antennal segments and in the hairs. The soft tissues of the body are yellowish coloured (with a little orange or red hypodermal pigment in the abdomen of one of the paratypes). Antennae brown, segment I yellow as head, II with the apical quarter paler yellowish-brown than the remainder, III with the pedicel and basal quarter paler yellow-brown, IV and V little paler brown at their respective bases, VI–VIII uniformly brown. Eyes almost black, with a red tinge. Ocellar crescents orange. Mouth-cone and ends of tarsi tipped with dark brown. Maxillary and labial palpi coloured like head. Legs coloured like body. Fore-wing pale brownish-yellow like cuticle, alula pale brown, veins not visible, chaetotaxy, including cilia, brown. Hind-wing pale brownish-yellow with brown longitudinal vein and cilia. Ovipositor brownish-yellow. Faint, almost parallel striae mark the integument across the head, the posterior pronotum and abdominal tergites I and IX and across the sides of the other abdominal tergites and pleurites, and they anastomose on the dorsal sclerites of meso- and meta-thorax.

Measurements : Length (width) : antennal segment I 21 (30), II 32 (22), III including pedicel 38 (16), IV 40 (16), V 30 (16), VI 40 (17), VII 9 (6), VIII 11 (5); total length of antenna 235; head, length from fore margin of eyes to base 72 (156); ocellar lens 16 (16); eye 54 (43); mouth-cone 112 (140 at base); maxillary palp segments I 18 (7), II 10 (5), III 13 (4); labial palp segments I 3 (6), II 13 (3); pronotum 128 (180); mesothorax 67 (224); metathorax 100 (200); fore-wing 590 (40 at middle); hind-wing 570 (28); abdomen contracted 448 (246); ovipositor 168 (90 at base); total length of contracted insect 750. Length of bristles : interocellar 16, postocular 13, on posterior angles of pronotum 43, on abdominal tergites II–IV 10–30, VIII 27–40, IX 40, 81, 94, X 81. Length of teeth of comb on VIII 13.

Head somewhat retracted into prothorax, cheeks parallel. Eyes not projecting. The inner angle of each eye is rounded and the facets are moderate in size, and about three hairs are seen in optical section of the eye. Ocellar lenses about equal in size. The ocelli lie between the eyes with the anterior ocellus forming an obtuse angle with the other two ocelli. The two small interocellar bristles lie between the posterior ocelli. A row of five postocular bristles lies on each side of the head. A stiff bristle lies on the face in front of each antenna and a stronger one between it and the eye. Mouth-cone broadly rounded.



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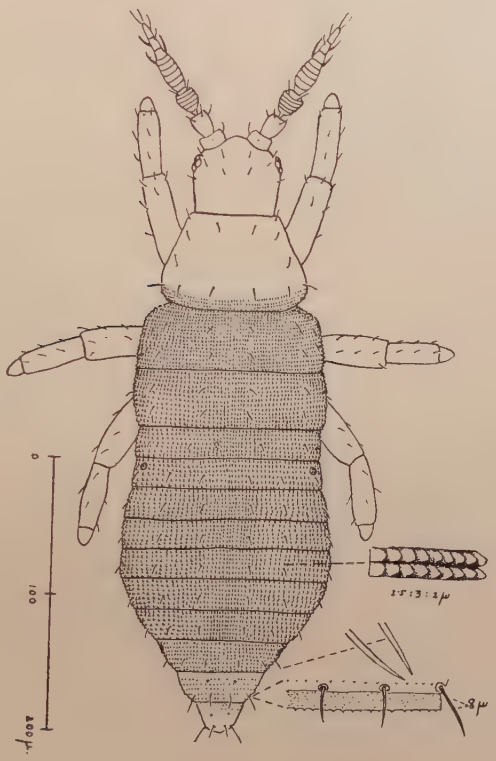

3

Antennae 8-segmented, inserted in front below the vertex of the head and closely approximated. Segment I almost rectangular in outline, broader than long, II barrel-shaped, but more constricted at the base, III fusiform, with a short pedicel, IV fusiform, with a short annular base, V oval, narrowest near base which is a short annulus, VI elongate-ovoid, with broad base and sides converging into those of VII and VIII which ends with a fairly blunt apex. A forked, curved trichome present on the dorsal surface of III just posterior to the apex, and another similarly placed on the ventral surface of IV. All the segments bear a few hairs, and besides these VI bears a long sensory trichome.

Pronotum with angles rounded. A single long bristle at each posterior angle and 8 hairs along the posterior margin, and of these the innermost pair is the longest. Also 32 hairs placed on the surface as depicted. Mesothorax somewhat retracted into prothorax.

Meso- and meta-thorax of normal structure. Legs normal, bearing some short hairs and without tarsal claws; hind tibia with a row of stiff bristles along its inner ventral margin.

Fore-wing: veins not visible, but marked by bristles; costa with 25 bristles in addition to the fringe hairs which number 21; 1st vein with 3 + 4 bristles in basal two-fifths of its length and 1 + 2 more widely spaced in the apical half; 2nd vein with 11–12 bristles. Abdomen elongate ovoid, rather broad. The posterior margin of tergite VIII bears a continuous comb of 36 teeth; IX and X bear the usual strong bristles and X is split dorsally for most of its length. The sternites III–VII bear each a row of 6 hairs near the posterior margin, and the hairs become longer and stronger progressively backwards on the segments.

Variation in ♀. The variation amongst the 3 paratypes is as follows. Antennal segment IV 38–42 (16), V 32 (16), VI 43–46 (16), VII 8–10 (6–8), VIII 13 (6); head 84 (164); pronotum 145 (196); fore-wing 560–627 (34–40); number of bristles on costa 23–27 in one specimen; 2nd vein 11–14; total length of insect somewhat contracted 644–850.

Allotype ♂ (macropterous) (fig. 2): Coloration like that of female but paler and with some red hypodermal pigment in the abdomen.

Measurements: Antennal segments I 13 (27), II 27 (19), III 38 (17), IV 38 (17), V 27 (16), VI 43 (16), VII 8 (6), VIII 13 (5); total length of antenna 184; head length from fore margin of eyes to base 67 (134); ocellar lens 10; eye 50 (36); mouth-cone 95 (100); maxillary palp segments I 16 (7), II 8 (5), III 13 (3); labial palp segments I 2 (5), II 13 (3); pronotum 112 (150); mesothorax 62 (190); metathorax 84 (173); fore-wing 487 (33); hind-wing 448 (28); abdomen 347 (156); genitalia 90 (34); total length of insect 582. Length of bristles: interocellar 12, postocular 10, on posterior angle of pronotum 35, on abdominal tergites II–IV 8–21, VIII 18, 24, IX each of four dorsal 27, near base 45, near apex 67, 54; X 21–24; length of teeth of comb on VIII 10; areas of delicate cuticle on abdominal sternites III 7 (48), V 7 (40), VII 7 (35).

Morphology like that of female. Fore-wings 25 bristles on costa; 1st vein with 3 + 4 bristles on basal two-fifths and 2–3 on the apical half; 2nd vein with 10–11 bristles. The posterior margin of tergite VIII bears a continuous comb of 32 teeth; IX lacks the pairs of strong short spines characteristic of males of this genus. Each of abdominal sternites III–VII bears a transverse band of delicate cuticle.

Variation in males, 2 paratypes, is as follows. Number of bristles on costa of fore-wing 21–22, on hind vein 9; total length of insects 604–644.

Larva II instar (fig. 3): General body colour, due to internal coloration, is uniform chrome yellow, with antennae and legs paler. Seen by reflected light against white paper the cuticle is transparent, pale grey, but darker brownish-grey on the antennal and leg segments, the apex of the head, the mouth-cone, the dorsal posterior margin of abdominal segment IX and the apical half of X, the cuticular processes and hairs. The brownish-grey is darkest and concolorous on all antennal segments (except I, which is pale), the basal third of each femur, the outer portion and particularly the base of each tibia and tarsus and on the dorsal regions of abdominal segments IX and X. Eyes dark red.

Measurements: Antennal segments I 13 (27), II 24 (19), III 29 (24), IV 38 (24), V 7 (14), VI 12 (10), VII 19 (6); total length of antenna 140; head 56 (90 across eyes, 78 at base); mouth-cone 78 (67); maxillary palp segments I 8 (5), II 11 (4); III 11 (3); labial palp segments I 2 (5), II 10 (2); prothorax 95 (140); mesothorax 56 (168); metathorax 56 (173); abdomen 285 (196); total length of insect 560. Variation in length of insects 460–627. Length of hairs: cephalic 9–13; prothoracic 8–13, abdominal segments II 8–12, IV 8–12, VIII 13–16, IX 13–17, X 13; grey band on IX 7–8 (50); wart-like processes of integument 2·5 : 3 : 2.

From the posterior of the prothorax to the base of abdominal segment X the cuticle is raised into transverse rows of blunt tubercles which are smaller on the ventral surface. Abdominal segments IX and X lack the spines found in some species of *Oxythrips*. All

the hairs are pointed. The posterior margin of the grey band on abdominal segment IX bears a few very minute teeth.

Described from 7 specimens of which I could not determine the sex. Full-grown specimens will almost certainly be larger but the comparative dimensions will show little or no change and the lengths of the hairs will remain constant.

The holotype ♀, allotype ♂ and 4 larvae II instar have been deposited in the Queensland Museum and paratypes ♀, ♂ and II in the British Museum (Natural History).

ON EIGHT SUBSPECIES IN THE LEPIDOPTERA RHOPALOCERA AT PRESENT WITHOUT VALID NAMES

By Francis Hemming, C.M.G., C.B.E., F.R.E.S.

The following notes have been made in the course of work on a projected *Systema papilionum palaearcticorum* :—

Satyridae.

Maniola cheena iskander nom. n.

Proposed as a substitute for *Maniola cheena chitralica* Tytler, 1926 (*J. Bombay nat. Hist. Soc.* **31** : 258), which is invalid, as it is a homonym of *Maniola davendra chitralica* Evans, 1923 (*ibid.* **29** : 781).

Nymphalidae.

Euphydryas aurinia phyllis nom. n.

Proposed as a substitute for *Melitaea aurinia coreana* Collier, 1933 (*Ent. Rundsch.* **50** : 54), which is invalid, as it is a homonym of *Melitaea aurelia* Nickerl var. *koreana* Elwes, 1899 (*Trans. ent. Soc. Lond.* **1899** : 335 *nota*).

Melitaea phoebe gaisericus nom. n.

Proposed as a substitute for *Melitaea phoebe leechi* Rothschild, 1917 (*Novit. zool.* **24** : 99) from Mogador, which is invalid, as it is a homonym of *Melitaea leechi* Alphéraky, 1895 (*Deuts. ent. Z. Iris* **8** : 182).

Argynnis paphia geisha nom. n.

Proposed as a substitute for *Argynnis paphia* Linnaeus var. *butleri* Krulikowsky, 1909 (*Rev. russ. Ent.* **9** : 298), which is invalid, as it is a homonym of *Argynnis butleri* Edwards, 1883 (*Canad. Ent.* **15** : 32). The name *butleri* Krulikowsky was itself a nom. n. for *Argynnis paphioides* Butler, 1881 (*Ann. Mag. nat. Hist.* (5) **7** : 134), which in its turn was an invalid homonym. Butler gave " Nikko, Central Japan " as the locality for *paphioides* Butler, and that locality is therefore the type locality of ssp. *geisha* Hemming, named above.

PIERIDAE.

Aporia crataegi herodias nom. n.

Proposed as a substitute for *Pieris crataegi meridionalis* Verity, 1911 (*Rhop. pal.* : 324, xxiv pl. 66 fig. 3 ♂ (type from Shar Deresy, North Syria), which is invalid, as it is a homonym of *Pieris napi meridionalis* Heyne, [1895] (*in* Rühl, *Pal. Grossschmett.* **1** (13) : 714).

Pieris brassicoides marghanita nom. n.

Proposed as a substitute for *Pieris brassicoides meridionalis* Joicey & Talbot, 1922 (*Bull. Hill Mus.* **1** : 339), which is invalid, as it is a homonym of *Pieris napi meridionalis* Heyne, [1895] (*in* Rühl, *Pal. Grossschmett.* **1** (13) : 714).

PAPILIONIDAE.

Polydorus phlegon deanna nom. n.

Proposed as a substitute for *Papilio annae* Felder & Felder, 1861 (*Wien. ent. Monats.* **5** : 297), which is invalid, as it is a homonym of *Papilio annae* Gistel, 1857 (*Vacuna* **2** : 603). The oldest available name for the collective species is *Papilio phlegon* Felder & Felder, 1864 (*Verh. zool.-bot. Ges. Wien* **14** : 326). This species is congeneric with *Papilio polydorus* Linnaeus, 1763, the type of *Polydorus* Swainson, 1833 (see Hemming, 1934, *Gen. Names hol. Butt.* **1** : 144), and should therefore be referred to that genus.

Zerynthia hypsipyle vipsania nom. n.

Proposed as a substitute for *Thais hypermnestra* Scopoli race *latevittata* Verity, 1919 (*Ent. Rec.* **31** : 88 " Sicily "), which is invalid, as it is a secondary homonym of *Zerynthia polyxena* [Denis & Schiffermüller] ab. *lativittata* Schultz, 1908 (*Ent. Z.* **21** : 267). The latter is a synonym of *Zerynthia hypsipyle hypsipyle* (Schulze, 1776).

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——. 1936, New species of Coccidae, *Trans. R. ent. Soc. Lond.* **84** : 901–936.

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1941.

WEDNESDAY, November 5
„ December 3

1942.

„ January 21 (ANNUAL MEETING)
„ February 4

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